Savannah River Site
Solid Waste Management Department
Consolidated Incinerator Facility
Operator Training Program

CONDUCT OF OPERATIONS (U)

Study Guide

ZIOITX53

Revision 00

_____
Training Manager/ Date

_____
Facility Manager/ Date

FOR TRAINING USE ONLY

The uncontrolled information contained in these training materials is FOR TRAINING USE ONLY. In no way should it be interpreted that the material contained herein may be substituted for facility procedures. Where copies of procedures are given, they are intended as examples and information only, and the latest revision of the material in question should be obtained for actual use. If you have any questions, contact your supervisor.

<u>REVISION LOG</u>

REV.	AFFECTED SECTION(S)	SUMMARY OF CHANGE
00	All	New issue

TABLE OF CONTENTS

REFERENCES

1.   WSRC 2S Manual, *Conduct of Operations*

2.   DOE Order 5480.19, Conduct of Operations Requirements for DOE Facilities, 7-9-90,
        Change 1, 5-18-92 (U)

LEARNING OBJECTIVES

TERMINAL OBJECTIVE

TO 1.00   Given a situation involving the operation of the facility, **APPLY** the appropriate conduct of operations principles and directives to ensure safe and efficient operations are maintained.

ENABLING OBJECTIVES

EO 1.01   **EXPLAIN** the requirements of procedure verbatim compliance.

EO 1.02   Given an operational scenario, **DESCRIBE** responsibilities of the procedure user when initiating procedure performance or performing the procedure.

EO 1.03   Given a procedural step, data, or roundsheet, **DETERMINE** the appropriate completion indicator, to include the following:

a.   NOT APPLICABLE (N/A)
b.   STANDBY (STBY)
c.   OUT OF SERVICE (OOS)
d.   NO READING TAKEN (NRT)

EO 1.04   Given out-of-limits data, **DESCRIBE** the responsibilities of the procedure user to identify, correct, and report abnormal or incorrectly recorded data.

EO 1.05   **DESCRIBE** the process of suspending a procedure to include the following:

a.   Conditions that require suspension of procedure performance
b.   Actions taken if procedure is required to be suspended

EO 1.06   **DESCRIBE** the required actions associated with a suspended procedure to include the following:

a.   When resuming the performance of a suspended procedure
b.   When the procedure performance will not be resumed

LEARNING OBJECTIVES (CONT.)

EO 1.07   **DESCRIBE** the required operator actions to the following situations which compromise safety:

a.   Actions or inactions called for by a procedure will lead to an unsafe condition

b.   Supervisory direction would place the health and safety of personnel in danger

EO 1.08   **EXPLAIN** the reader/worker method of procedure performance.

EO 1.09   **DESCRIBE** the process by which an operator is allowed to depart from a procedure without first initiating a procedure revision, to include:

a.   Conditions which allow the departure

b.   Procedure user required actions

EO 1.10   **DESCRIBE** the responsibilities of the sender and the receiver when conducting verbal communications.

EO 1.11   Given a verbal communication scenario, **DETERMINE** the correct method of sending or receiving verbal reports, instructions, or operational directives.

EO 1.12   **DESCRIBE** the detail to which log entries should be made.

EO 1.13   Given a log entry scenario, **DETERMINE** if the log entries are appropriate according to Section 2.4 of the 2S Manual.

EO 1.14   **EXPLAIN** how the following entries are made in logbooks:

a.   First entry by on-coming watchstanders

b.   Last entry by off-going watchstanders

EO 1.15   **DESCRIBE** log entry requirements to include:
a.   Who is authorized to make log entries
b.   Condition necessary for others to make log entries

EO 1.16   **EXPLAIN** how log entry corrections and late entries are made.

LEARNING OBJECTIVES (CONT.)

EO 1.17   **EXPLAIN** the review of operating logs to include:

       a.   Why the review is performed
       b.   Who performed the review
       c.   How the review is documented

EO 1.18   **EXPLAIN** the responsibilities of an operator concerning required reading to include the following:

       a.   Significance of signing/initialing Required Reading
       b.   Required Reading material to be read before assuming the shift or workstation
       c.   Actions if Required Reading material is not understood

EO 1.19   **STATE** the trainee's and the trainer/evaluator's required actions prior to manipulating controls during On-Shift Training.

EO 1.20   **DESCRIBE** the trainee's required actions during On-Shift Training if an Abnormal or Accident Condition occurs.

EO 1.21   **DESCRIBE** the operator actions during Facility Drills and Monitored Evolutions associated with the following:

       a.   Health Protection practices
       b.   Log entries pertaining to the drill
       c.   Corrective actions following initiation of a drill
       d.   Manning of watchstations

EO 1.22   **DESCRIBE** the operator's responsibilities during shift turnover with regard to:

       a.   Turnover location
       b.   Qualification of on-coming operator
       c.   Conditions of on-coming operator
       d.   Operator reports following turnover
       e.   Abnormal operating conditions during turnover

LEARNING OBJECTIVES (CONT.)

EO 1.23   **DESCRIBE** the turnover walk-down process to include:

        a.   Personnel required to attend control area walk-downs
        b.   Time and location of the walk-down required by the operators responsible for support systems

EO 1.24   **DESCRIBE** the three phases of the shift briefing process to include:

        a.   Personnel responsible for conducting each phase
        b.   Content of presentation of each phase

EO 1.25   **DESCRIBE** the requirements of changing a posted watchbill to include:

        a.   Personnel allowed to grant permission for the change
        b.   Steps taken to make the change
        c.   Short term relief documentation

EO 1.26   **DESCRIBE** the conditions that must be met prior to resetting an alarm or protective device.

EO 1.27   **DESCRIBE** the difference between Shift Orders and Standing Orders as they apply to:

        a.   Required update/review frequency
        b.   Content
        c.   Use in lieu of approved operating procedures
        d.   Means of circumventing necessary procedure changes

EO 1.28   **DEFINE** the following terms:

        a.   At-the-Controls (ATC)
        b.   Control Area

EO 1.29   **DESCRIBE** the Control Area Operator's responsibilities with respect to their performance of ancillary duties.

LEARNING OBJECTIVES (CONT.)

EO 1.30   **DESCRIBE** the responsibilities of the watchstander while performing rounds.

EO 1.31   **DESCRIBE** the process of updating status control mechanisms to include:
        a.   System status files/folders
        b.   Status boards
        c.   Equipment alignment checks

EO 1.32   **DESCRIBE** the concept of independent verification.

EO 1.33   **DESCRIBE** the independent verification techniques for typical components.

EO 1.34   **DESCRIBE** the role of using process parameters when performing independent verification.

EO 1.35   **NAME** the separation criteria that must exist between an initial positioner and an independent verifier.

EO 1.36   **STATE** the action necessary if a component is found in other than the specified position during an independent verification.

EO 1.37   **IDENTIFY** the actions to be taken if the independent verifier discovers a Do Not Operate tag on a component.

EO 1.38   **DESCRIBE** the responsibilities of all personnel regarding Hazardous Energy Control.

EO 1.39   **LIST** five operator responsibilities applicable to the Operational Aspect of Facility Chemistry and Technical Processes.

This page is intentionally left blank.

INTRODUCTION

The WSRC Manual 2S, *Conduct of Operations*, was written to establish standards that are used by the Westinghouse Savannah River Company. These standards comply with the requirements of Department of Energy (DOE) Order 5480.19, "*Conduct of Operations Requirements for DOE Facilities*." These requirements establish criteria in which a nuclear facility can operate safely and effectively.

Operating in accordance with these standards is a fundamental requirement for the safety of employees, the public, and facilities. Compliance with these standards provides defense-in-depth against many kinds of accidents and adverse incidents by minimizing error and confusion and by providing clear means to identify problems, determine underlying causes, take preventive action before adverse events occur, and bring about continuous improvement in the quality and safety of operations.

The 2S Manual is divided into seven sections:

- Introduction
- Procedures
- Communications
- Training
- Shift Operations
- Facility Operations
- Glossary

Each of these sections contain associated procedures dealing with the particular topic. The procedures covered by this introductory course are identified in Table 1.

Table 1 - Conduct of Operations Topics	
2S Manual Procedure	**Topic**
• Procedure 1.3	Procedure Compliance
• Procedure 2.1	Communications
• Procedure 2.4	Operating Logs
• Procedure 3.1	Required Reading
• Procedure 3.2	Control of On-Shift Training
• Procedure 3.3	Facility Drills
• Procedure 4.1	Shift Turnover
• Procedure 4.2	Shift Briefings
• Procedure 4.5	Timely Orders to Operators
• Procedure 5.3	Control Area Activities
• Procedure 5.4	Roundsheet Preparation and Use
• Procedure 5.5	Control of Equipment and System Status

Although requirements play a major role in the Conduct of Operations, a larger part is the operating philosophy developed by each member of the CIF team. Elements of this operating philosophy include:

• Ownership
• Having a questioning attitude
• Attention to Detail
• Professionalism
• Excellence
• Teamwork

Conduct of Operations should be the way we do business every day, not just a set of requirements.

PROCEDURE COMPLIANCE

This section describes the instructions and guidance to personnel on procedure compliance associated with technical and response procedures. Procedural instructions and guidance are given for procedure use and suspension as well as the departure from approved procedures.

Introduction

The use of technical or response procedures is required under the following conditions:

- The activity is infrequently performed

- The activity is complex

- The steps of the activity must be performed in sequence with no omissions

- Data taking is required at the conclusion of the activity or after certain steps during the performance of the activity

- An error during performance of the activity would result in unacceptable safety conditions

General Guidance

Procedures are to be used only by trained and qualified personnel. Trainees may perform the procedure, but only when directly supervised by a qualified person.

EO 1.01	**EXPLAIN** the requirements of procedure verbatim compliance.

When technical and/or response procedures are performed, verbatim compliance is mandatory. This means the procedure shall be present and in use with each step performed as written.

Verbatim compliance is significantly different from blind compliance, and should not be though of as such. Blindly following procedures with malfunctioning equipment or with procedures that are in error due to plant modifications can cause the operator to place the facility in an unsafe condition. Each operator should think of the consequences of performing each procedure step based on current plant conditions prior to performing the step. If concerns are raised, or if the procedure is though to be in error, it should not be continued until the problems are resolved.

At CIF, certain evolutions have been designated such that procedures are not necessary for performance. These evolutions are designated in the standing orders, and include the following:

- DCS manipulations to monitor plant status
- Switch manipulations required in the performance of rounds
- As directed by the Shift Manager for equipment or personnel safety - this items are required to be logged
- Emergency situations requiring manipulation to mitigate accidents

Initiating Procedure Performance

EO 1.02	Given an operational scenario, **DESCRIBE** responsibilities of the procedure user when initiating procedure performance or performing the procedure.

The procedure user obtains a copy of procedure and/or the associated data sheets from appropriate location. These locations include designated storage locations, the computerized procedure issue system, and Satellite Document Control Stations.

Once the procedure is obtained, it is compared with the Controlled Procedure Index. This is done to ensure the procedure is the latest revision and has all Immediate Procedure Changes. In addition, all pages are verified to be present.

Procedure Performance

Prior to starting a procedure, the procedure user reviews the entire procedure for understanding, paying particular attention to prerequisites, precautions, and limitations.

While performing the procedure, all entries are to be legible and written in black ink. The steps and sections of the procedure are performed in sequence unless procedural guidance indicates otherwise. The procedure user should anticipate the results of each step before taking the required action.

The procedure user must comply with the procedure(s) during the performance of activities. Steps are to be performed as written. If the validity of any procedural step is in question, supervision is immediately notified.

Last Procedure User

The last procedure user reviews the completed procedure prior to submitting it to supervision. At a minimum, the following are checked:

· All required sign off blanks have been completed
· All attachments and data sheets required by the procedure are attached and complete
· All procedure signature statements have been signed and dated as required
· All procedure requirements have been met
· All calculations are correct
· Acceptance criteria, if any, have been satisfied

If a "completed by" statement is provided and the procedure was completed by more than one person, the last user signs and dates the "completed by" statement.

If a procedure directs the user to complete steps or sections from another procedure, the completed steps or sections of the other procedure are attached to the referencing procedure.

Once the last user is satisfied with the completeness of the procedure, it is submitted for a supervisory review.

Shift Manager/First Line Supervisor

The shift manager or first line supervisor reviews the finished procedure. It is preferred that the procedure be reviewed before the end of the shift in which the procedure was performed. However, the procedure must be reviewed before the end of the next shift. A procedure is not considered performed and complete until the results or acceptance criteria have been reviewed and approved by supervision.

At a minimum, the procedure is checked to ensure the following:

·   The procedure has been performed in accordance with the 2S Manual, Procedure 1.3

·   Discrepancies or omissions are resolved

·   All entries are legible and entered correctly

·   Calculations performed in the procedure or attachments are correct

·   Acceptance criteria has been met or evaluated

·   Identified problems are dispositioned and appropriate corrective actions have been initiated

·   Reports or notifications required by identified problems or procedural requirements have been performed

Procedure Changes or Revisions

If a procedure change or revision is issued while a procedure is being performed, shift supervision (Shift Manager or designee) reviews the procedure to determine the impact on work in progress and provide direction to the procedure user(s).

If it is determined that the procedure can be continued, then the user is directed to complete the old revision or applicable data is transcribed from the previous revision to the new revision accompanied by an explanatory statement.   If the procedure cannot be continued, then the use of the procedure is suspended.

Using Completion Indicators and Other Data Gathering Explanations

EO 1.03	Given a procedural step, data, or roundsheet, **DETERMINE** the appropriate completion indicator, to include the following:
	a.　　NOT APPLICABLE (N/A)
	b.　　STANDBY (STBY)
	c.　　OUT OF SERVICE (OOS)
	d.　　NO READING TAKEN (NRT)

The use of completion indicators (N/A, OOS, etc.) to bypass or delete a procedural requirement is prohibited. Completion indicators and data gathering explanations are only used to complete sign-offs and data tables.

Using Not Applicable (N/A)

Not Applicable (N/A) can only be used during specific circumstances. N/A (not applicable) is used for the following:

· 　　When a conditional step is provided and the condition is not met

· 　　When procedural guidance states as such

· 　　When a choice of steps is given, the non-completed steps are indicated with N/A

If procedural guidance permits, it is permissible to N/A sections or groups of steps. This is accomplished by:

·   Drawing a box around the affected text to be marked N/A

·   Drawing a large "X" that fills the box

·   Entering N/A in the box

Using Standby (STBY)

Standby (STBY) is used when equipment is not operating but is capable of operating. If equipment is not operating, but is capable of operation, then record STBY in the space provided for recording the data. If the equipment is setup for automatic start, record the applicable data as required by the data sheet.

Using Out of Service (OOS)

Out of Service (OOS) is used when a piece of equipment is not in service and is not capable of operation. If a reading on a data sheet or round sheet pertains to a system or function that is not capable of operation or is listed in an approved work package or lockout order, then the following actions are taken:

·   The sheet entry is marked as OOS

·   The OOS entry is circled using red ink

·   Supervision is notified

·   The OOS entry is explained in the narrative log or in narrative section of the round sheet

Using No Reading Taken (NRT)

No Reading Taken (NRT) is used when a data point is inaccessible for monitoring. If a data point is inaccessible for monitoring, then the following actions are taken:

· The sheet entry is marked as NRT

· The NRT entry is circled using red ink

· Supervision is notified

· The NRT entry is explained in the narrative log or in narrative section of the round sheet

If all the equipment on the sheet meet one of the STBY, OOS, NRT conditions, then the following actions are taken:

· The center of the sheet is marked using either STBY, OOS, or NRT (as applicable)

· Horizontal, vertical, or diagonal lines marked with STBY, OOS, NRT (as applicable) are used to indicate multiple readings

· Entries are initialed and dated

Using None and No Further Entries

If a procedure directs the user to enter information for certain conditions, and those conditions do not exist, then enter "NONE" in the applicable space.

If data collected does not fill or use all the space (lines, blanks) provided, then the following actions are taken:

· A single line is drawn under the last set of data

· "No further entries" is written on the line

· The entry is initialed and dated

When other explanations are required on non-operational equipment, provide an explanation at the beginning of the group or sections.

Identifying and Reporting Abnormal and Incorrect Data

EO 1.04   Given out-of-limits data, **DESCRIBE** the responsibilities of the procedure user to identify, correct, and report abnormal or incorrectly recorded data.

During the performance of a procedure, abnormal or incorrect data may be obtained. If data obtained during performance of a procedure is out-of-limits as specified by the procedure, then the following actions are taken:

·   The condition is corrected if authorized by supervision, procedure, or qualification

·   The abnormal data value is recorded

·   The abnormal reading is circled using red ink

·   The condition is immediately reported to the supervisor and shift manager

·   The corrective action taken is recorded in the operating log or narrative section of the round sheet

·   Shift management will determine the appropriate actions in terms of procedure continuance

·   A narrative entry is recorded in the applicable log or round sheet to explain the reason for the reading and to document the shift manager's direction

·   The narrative entry is dated (including the time) and initialed

Incorrectly recorded data may be discovered during the performance of a procedure. If incorrect data does not affect subsequent procedure steps, the following actions are taken:

·   A single line is drawn through the entry

·   The correct information is entered

·   The entry is initialed and dated

If the incorrect data entries affect subsequent procedure steps, then the procedure is suspended.

All incorrect entries are reported to supervision. Supervision will determine the course of action to continue, suspend, repeat steps, etc. of the procedure.

Suspending Procedure Performance

EO 1.05	**DESCRIBE** the process of suspending a procedure to include the following:
	a.　　　Conditions that require suspension of procedure performance
	b.　　　Actions taken if procedure is required to be suspended

It may be required to suspend the performance of a procedure due to various conditions. If any of the following exist or occur:

·   Unexpected results occur
·   Abnormal conditions occur
·   The procedure is inadequate
·   Components found out of position (e.g., valves, switches, etc.)
·   Two or more procedures governing the activity conflict

Then the following actions are performed:

·   The procedure is stopped
·   Supervision is notified
·   Appropriate actions are taken as directed by the shift manager

Positive steps are performed to ensure the facility equipment and systems are placed in a safe condition. Shift supervision determines whether it is possible to change or modify the procedure and continue. All procedure changes and modifications must be made in accordance with the 2S Manual, Procedure 1.1.

EO 1.06	**DESCRIBE** the required actions associated with a suspended procedure to include the following:
	a.　　　When resuming the performance of a suspended procedure
	b.　　　When the procedure performance will not be resumed

Once it is determined to resume a suspended procedure, the following actions are taken:

·   Prerequisites are verified to ensure they are still met

·   The procedure is verified to be the most recent revision and contains all Immediate Procedure Changes

·   Steps are repeated as directed by supervision

If it is determined that the procedure will not be resumed, the following actions are taken:

·   The procedure number, the last step completed, and a narrative entry explaining reason for discontinuing the procedure are documented in the shift logbook

·   A horizontal line is drawn in the margin at the point the procedure was stopped

·   Signature or initials, date, time, and a narrative entry explaining the reason for discontinuing the procedure are entered next to the horizontal line

Safety Questions

EO 1.07   **DESCRIBE** the required operator actions to the following situations which compromise safety:

a.   Actions or inactions called for by a procedure will lead to an unsafe condition

b.   Supervisory direction would place the health and safety of personnel in danger

---

Anytime personnel believe that the actions or inactions called for by a procedure will lead to an unsafe condition, supervision is notified. If personnel believe the supervisor's guidance is inappropriate and the action or inaction could place the health and safety of personnel or the facility in danger, and supervision insists on continuing, then the following actions are taken:

·   The facility is ensured to be in a safe condition

·   An entry in the log is made stating:

        -      Instructions for action or inaction are considered unsafe
        -      The name of the individual providing instruction
        -      The fact that you have raised a concern
        -      A reason for the concern

·	The procedure or activity is suspended

·	The next appropriate level of supervision is contacted for guidance

·	If proper resolution is not obtained, then contact the facility manager

Management and supervision should resolve issues dealing with safety concerns on an urgent basis.

Reader/Worker Method

EO 1.08	**EXPLAIN** the reader/worker method of procedure performance.

If circumstances are such that it would be improper or difficult to physically have possession of a procedure or to make required entries, then the following is performed:

·	The reader and the worker review the procedure prior to starting the job or activity

·	The reader is to be positioned as close to the worker as possible

	-	Entering a contamination area is not necessary

·	Both establish/ensure adequate communications with each other via voice, telephone, radio, etc.

·	The reader reads each warning, caution, note, or step in its entirety to the worker and waits for the worker to acknowledge full understanding by repeating each step (paraphrasing is acceptable)

·	The worker reports completion of the required action to the reader to allow the reader to mark the procedure appropriately

Departing from an Approved Procedure

EO 1.09	**DESCRIBE** the process by which an operator is allowed to depart from a procedure without first initiating a procedure revision, to include:
	a. Conditions which allow the departure
	b. Procedure user required actions

Operations outside of procedural, regulatory, or management requirements are strictly prohibited. Departure from a procedure may only occur during emergency situations in order to place the facility in a safe and stable condition, and to protect equipment, personnel, and public safety without first initiating a procedure revision.

If it becomes necessary to depart from a procedure, the procedure user obtains concurrence from the shift manager prior to taking any actions. If immediate actions are necessary to protect human life or minimize facility or equipment damage, concurrence from the shift manager is not needed.

The procedure user takes the appropriate actions required to place the facility or equipment in a stable condition. The actions taken and facility conditions are immediately reported to the shift manager. The shift manager logs the actions taken outside of the procedure and immediately reports the situation to facility management.

Responding to Abnormal Conditions

Response to abnormal conditions may require different methods of procedure usage than would be the case under normal facility conditions. All alarms are treated as real until proven otherwise. Alarm Response Procedures (ARPs) do not have to be performed for alarms that annunciate due to preplanned activities (i.e., maintenance, troubleshooting). If an operator recognizes an alarm as an Entry condition to an Emergency Operating Procedure (EOP), it is not necessary to first refer to the associated ARP. During abnormal conditions, it is not expected that EOPs be consulted for the performance of Immediate Actions, since they are required to be memorized.

The procedure user uses ARPs, AOPs, and EOPs according to the following guidelines:

·   Confirm alarm / emergency / abnormal condition

·   Perform Immediate Actions

·   Confirm the procedure Immediate Actions, when conditions allow

·   Use the procedure to perform Subsequent Actions

·   If a procedure is entered and exited without completing the Subsequent Actions because of changing facility conditions, then document the performance of the procedure in the appropriate log

Following the completion of the AOP or EOP, the facility is restored to a safe condition. If time allows, operating procedures are used to returning to normal operations. When time and conditions permit, operating procedures are used to confirm the following:

·   Equipment was operated properly

·   Equipment was properly restored to its standby condition

·   An initial set of operating readings was taken

If procedures were not used during the abnormal condition and the condition is over, actions taken are confirmed with appropriate procedures.

COMMUNICATIONS

This section introduces the two major forms of communication. It will describe the accepted technique of verbal interchange between an operator and his/her supervisor, as well as giving insight as to what the barriers to good communication are.

Processing Verbal Communications

Verbal communication is the most common form of communication. Whereas procedures and logsheets provide one-way communications, verbal communications is obviously two-way communication. This can be referred to as "closed loop" communication.

There are a number of advantages of two-way communications over one-way communications. Below are these advantages:

·   Both parties are free to exchange information back and forth
·   Teamwork is encouraged
·   Misunderstandings are minimized
·   Reduces probability of error

The term "closed loop" was used above. This can be visualized as an individual delivering a verbal communication to another individual. The deliverer is the transmitter, or sender. The person being talked to is the receiver of the message. The receiver will repeat the message back to the sender to show the sender that the receiver has understood the message. This is called feedback. A complete "closed loop" has been formed between the two participants in the verbal communication. The four closed communication loop components, then, are:

·   Transmitter/sender of message
·   Message
·   Receiver of message
·   Feedback

EO 1.10   **DESCRIBE** the responsibilities of the sender and the receiver when conducting verbal communications.

The transmitter/sender of a message is responsible for particular characteristics to provide good two-way communications. He/she should send clear, complete, and specific messages. Emotions and body mannerisms can add to face-to-face communications for emphasis and clarity.

COMMUNICATIONS

The sender may need to be redundant to ensure that the receiver understands the message. He/she may need to use a different approach to get the message across. Require feedback. This is to verify that the receiver has understood the message.

The receiver of the communication is also responsible for particular characteristics. First, focus on the sender and the message. Make an effort to listen to and understand the message from the sender. Stop talking. If the receiver is talking, he/she won't be able to concentrate on the sender's message. Reducing external distractions will also help to focus on the sender. People tend only to hear the first part of the message and then start thinking about a response. Listen to entire message to get the full meaning in context.

When the message is complete, provide feedback to the sender to show that the receiver understands. For communications to be as effective as possible, all barriers should be eliminated.

Verbal Communication

Verbal communication is the most common form of communication and may range from very formal to routine face-to-face communications. Operating directions are verbal instructions that are given to an operator that involve the operation of a system or piece of equipment. They must be short or given in a written form, if long. Some forms of operational applications are:

- Face-to-face
- Telephone
- Radio
- Public Address System

EO 1.11   Given a verbal communication scenario, **DETERMINE** the correct method of sending or receiving verbal reports, instructions, or operational directives.

Operating directions are to be acknowledged by the recipient by repeating back the instructions given so that the giver knows that the instructions were understood. They are to be explicit, understandable, and should include:

- Who is giving the directions
- Who is to perform the action
- What is to be done ("why" if time allows)
- When it is to be done
- What procedure applies
- When to report back

Use the "Phonetic Alphabet" when needed instead of regular letters.

Attributes of Verbal Communications

The attributes of good verbal communication, if practiced, will make operational directives professional and specifically understood. The attributes are:

·   The identity of individuals is understood

·   Precise terminology is used

         Don't use slang or sound-alike words (increase/decrease) but use different terms (raise/lower).

·   Use noun name and number for equipment

         For example: Cross-Connect valve MSS-25 (Mike - Sierra-Sierra - 2-5)

·   Speak clearly and deliberately

·   Acknowledge all communications

         Verbatim repeat back or paraphrasing constitute an acknowledgment.

·   Do not include multiple actions in a verbal instruction

         It can be confusing. Use several short directions or write the complete instructions down. If an evolution is lengthy, have frequent briefings to ensure that all personnel are knowledgeable of facility status and planned activities. Write down information; don't rely on memory for data, operating parameters, equipment numbers or actions to be done.

OPERATING LOGS

This section describes operating logs by what they are and how they are used. Direction for how logs are reviewed is also covered.

General Criteria

Operating logs provide a system for ensuring that pertinent information is passed from one shift to the next. This helps to aid in event reconstruction and supports trending analysis. Logs must be maintained by all key positions. Key positions are determined by Facility Manager.

EO 1.12	**DESCRIBE** the detail to which log entries should be made.

The log entry detail is such that it should provide enough to be understood by personnel who were not present at the event which was entered. A description of the situation or event should be adequate. The following guidelines will make it a sufficient entry:

·   What happened
·   Its significance and cause
·   Any corrective or follow-up actions taken or required

The entries should contain only facts and pertinent data. This precludes any form of opinion or unrelated information. If complete facts are not known, enter whether the event is being investigated.

It is also important, obviously, that the entries be legible. They must be easily read and understood. The entries will be made in black inked ball-point pen. This will ensure that the log entry can be photocopied and read easily.

Information to be Recorded

It is helpful to know what is to be recorded and how it is to be recorded. The following are guidelines from the 2S Manual:

EO 1.13	Given a log entry scenario, **DETERMINE** if the log entries are appropriate according to Section 2.4 of the 2S Manual.

·   The time the event or statement is entered

         This aids in event reconstruction. The time should be entered in military time. For example: 8:43 PM is written as 2043.

EO 1.14	**EXPLAIN** how the following entries are made in logbooks:
	a. First entry by on-coming watchstanders
	b. Last entry by off-going watchstanders

·   First and last entry on shift

         The first entry should be made by the oncoming shift. It should include:

         -        Time and date
         -        The words "Assumed Position Duties"
         -        Signature of oncoming watchstander

         The last entry should be made by the off-going shift. This entry should include:

         -        Time and date

         -        The words "Relieved by" (printed name of oncoming watchstander)

         -        Signature of off-going operator

·   Specific qualifying information

         This information makes the entries less ambiguous. An example of specific qualifying information is °F or °C.

What follows are some examples of types of information recorded throughout each shift. These should be known while on shift in case an event occurs. If in doubt whether to log it, the general rule is to log it.

Examples of types of log entries:

·   Changes in the status of major processes

·   Changes in the status of the area, process, or monitoring/detection equipment

·   Alarms activated, locked out, bypassed, or off-normal settings

·   Major equipment or system problems encountered during the shift

·   Progress of work efforts within facility areas

·   Special procedures which are required to support operations conditions which occur during each shift

·   Abnormal or unexpected events and operating conditions which occur during each shift

·   Significant changes in radiological conditions/levels

·   Security incidents and personnel accident or injuries

·   Drills, exercises, or tours

Remember, logs should contain only facts and pertinent data.

Log Entry Control

Entries should begin on a new unmarked page for each successive oncoming shift. Entries must be consecutive and chronological with:

·   Time entered in the left margin
·   No lines left blank

Information regarding activities or events should be recorded promptly. Time can cloud the memory so that incomplete or inaccurate events will be entered.

EO 1.15	**DESCRIBE** log entry requirements to include:
	a. Who is authorized to make log entries
	b. Condition necessary for others to make log entries

Only particular personnel are authorized to make log entries. They are:

·   Qualified shift personnel

·   Trainees under the direct supervision of the qualified watchstander

·   Others in emergency situations

·   Anyone wanting to make a log entry may with the permission of the qualified watchstander

Once permission is given to make an entry and after the entry, the entered signs below the entry just made. The qualified watchstander signs below that, signifying permission was granted only. This does not signify that the watchstander agrees with the log entry.

Making Corrections and Late Entries

EO 1.16	**EXPLAIN** how log entry corrections and late entries are made.

To correct an existing entry:

·   Draw a single line through the incorrect entry

         Don't use any other means to "De-Authorize" the entry.

·   Enter the correct information close to the incorrect entry

         If space allows. If not, make a note in the narrative as to what the correct entry is.

·   Record the date and the initials of the person making the change

A late entry is an entry which is out of chronological sequence. To correct a late entry:

·   Enter the time the late entry is made

         This is the "NOW" Time

·   Enter the Words "Late Entry"

         All of the Late Entry information is entered on the same line.

·   Write the late entry narrative

         Write what happened at the time of the event.

·   Include in the narrative the time the entry described occurred

·   Initial at end of late entry (the person making the entry)

Log Review

EO 1.17	**EXPLAIN** the review of operating logs to include:
	a. Why the review is performed
	b. Who performed the review
	c. How the review is documented

The purpose of log review is to ensure that entries are accurate and adequate and no adverse trends are developing.

The Facility Operations Manager reviews the logs of the senior individual on shift. This could be the Shift Manager of the senior control area operator. This is done daily by the facility operations manager during the week. Weekends and holidays are not reviewed by the facility operations manager. The next review would be the next working day after the weekend or holiday. To document that he/she reviewed the logs, the facility operations manager initials and dates the log. The 2S Manual is not specific about where on the log the documentation should be entered. Each facility operation manager may decide whether to initial in the margin or below the last entry prior to review.

Operator's/supervisor's logs are reviewed by the next level of supervision. This review is performed once per operating shift. This review is documented by initialing and dating the log in the margin nearest to the last entry reviewed.

REQUIRED READING

*This section discusses the required information contained in the required reading
files and the responsibilities of each individual to the required reading program.*

Purpose

The purpose of required reading is to ensure that designated individuals are given the opportunity
to read, understand, and be kept informed of important information that will enhance their ability
to effectively perform their job assignments.

General Information

Only information that needs documentation indicating an individual has read and understood the
material should be included in the Required Reading Program. Care must be taken to prevent
degrading the system by including information that can be disseminated by a less formal means.

Information included in the Required Reading Program, but not limited to the following:

· Operating Experience Weekly Summaries
· SRS Lessons Learned Bulletin
· Applicable occurrence reports
· Critique reports
· New procedures and/or revisions
· Safety Newsletters from SRS Safety Dept.
· Appropriate facility/equipment configuration and design changes
· Changes to the Design Basis Authorization documentation for the facility
· Related industry and SRS operating experience information
· Videos of tests, incidents, tasks, etc. that would prove beneficial

A Required Reading Log is maintained to document the completion of each required reading item. The Required Reading Log contains, at a minimum, the following information for each discrete piece of required reading material:

·   Unique, sequential required reading ID number
·   Unique document identification number, if available
·   Title and/or description of specific material
·   Designated readers, by full name and SSN
·   Date material was provided
·   Required reading completion date
·   Individuals' signatures/initials after completing and understanding the material
·   Actual date completed by designated reader
·   Name of issuing supervisor/manager

EO 1.18   **EXPLAIN** the responsibilities of an operator concerning required reading to include the following:

a.   Significance of signing/initialing Required Reading

b.   Required Reading material to be read before assuming the shift or workstation

c.   Actions if Required Reading material is not understood

Signing or initialing required reading means the individual has read and understands all of the material. It is the responsibility of the reader to question his/her immediate supervisor when subject matter is not understood.

Certain documents may be designated for "immediate required reading." These documents should be read prior to assuming the shift or work station.

CONTROL OF ON-SHIFT TRAINING

This section discusses the positions and responsibilities of the trainer/evaluator, qualified operator, and the unqualified trainee during On-Shift Training.

Purpose

Qualified Operators must ensure that the trainee satisfactorily meets the training objectives and receives maximum benefit from the experience. On-shift training is the portion of a qualification program where the trainee receives training within the work environment, with as much hands-on experience as possible.

On-Shift Training Program

Each facility is responsible for ensuring that on-shift training programs are developed for its supervisors, operators, and trainees seeking qualification. Operation positions requiring certification/qualification should be based on a one-to-one instructional program for that position or work station.

On-shift training is conducted in accordance with qualification programs that specifically identify items that the trainee must accomplish on shift. The knowledge requirements for each item are defined, as well as the actions the trainee must take (perform, simulate, or discuss). Both the trainer/evaluator (T/E) and the trainee must understand what is required for each item. The T/E should be qualified in on-shift training techniques and currently qualified/certified. If the T/E is not currently qualified/certified, any equipment operation must be performed under the direct supervision of a qualified/certified operator.

EO 1.19	**STATE** the trainee's and the trainer/evaluator's required actions prior to manipulating controls during On-Shift Training.

Whenever a trainee operates equipment, the T/E observes the trainee to ensure that the trainee does not make an error. The T/E must receive control room approval from the shift manager or the control room supervisor prior to beginning any job performance measures that involve actual operation of equipment. The trainee demonstrates the actions to be performed by pointing to the control switch, valve, breaker, etc., that will be manipulated, prior to manipulating the item. The T/E closely monitors the trainee and remains in a position to intervene, if necessary, or assume control. When trainees record entries on official documents (round sheets, logs, etc.), the T/E co-signs to verify that the recorded information is correct. The T/E, as the qualified operator, is responsible for any actions taken by the trainee.

EO 1.20	**DESCRIBE** the trainee's required actions during On-Shift Training if an Abnormal or Accident Condition occurs.

Trainee operation of equipment is immediately suspended during unanticipated or abnormal events, accident conditions, or whenever qualified operations personnel believe suspension is necessary to ensure safe and reliable facility operation. During abnormal or accident conditions, the trainees can not participate in facility operations unless specifically directed to do so by the T/E or the watchstander.

A maximum limit for the trainee-to-instructor ensures that the trainee is provided with effective instruction and that the instructor is not distracted by having too many trainees. The facility manager normally limits the number of trainees to three trainees per T/E.

FACILITY DRILLS AND MONITORED EVOLUTIONS

This section discusses the general requirements of conducting facility drills and monitoring facility evolutions in progress. In addition, the purpose and importance of post-drill critiques is discussed.

Introduction

The drill program is a vital part of maintaining facility operators in a state of readiness for handling abnormal conditions. The program is intended to exercise facility personnel and equipment during operating and shutdown facility conditions. It is intended to build operator proficiency in responding to abnormal conditions as well as consistency in the performance of routine evolutions. Any documentation resulting from an actual facility event can be used to demonstrate crew readiness.

General Requirements

The shift manager is ultimately responsible for the plant/facility and personnel safety. The shift manager has the authority to terminate the drill for just cause at any time.

EO 1.21	**DESCRIBE** the operator actions during Facility Drills and Monitored Evolutions associated with the following:
	a. Health Protection practices
	b. Log entries pertaining to the drill
	c. Corrective actions following initiation of a drill
	d. Manning of watchstations

The following general requirements apply to the performance of drills:

·   No drill shall be initiated by actually exceeding an alarm setpoint or control parameter

·   All normal Radiological and Industrial Hygiene practices shall be adhered to

·   All log entries pertaining to the drill shall be preceded with the word "Drill"

·   Do not use instrumentation to simulate drill indications without a reliable and calibrated backup indication to monitor

·   Utilize facility operating procedures for corrective actions following initiation of a drill

·   All required watchstations shall remain manned

·   Evacuation / incapacitated operator drills require qualified personnel to be assigned to assume the watchstation

·   If an actual plant alarm condition occurs, the alarming condition shall be announced followed by the statement "This is not a drill." If the alarm condition is a significant situation, announcement shall be made to terminate from the drill and the facility will be restored to a safe condition.

Conducting Drills

Drills can be a very effective tool in increasing operator proficiency in responding to abnormal and emergency conditions. The facility Operations Manager and the Training/Designated Manager choose drill scenarios that will be used from a pre-approved drill bank. A Drill Coordinator is chosen to run the drill.

Prior to running the drill, the Drill Coordinator conducts a briefing with all drill monitors, the Shift Manager, and the Senior Observer to ensure that the facility conditions and prerequisites are as specified in the approved drill scenario and that termination points, abort limits, and special precautions are defined and understood by all.

The Drill Coordinator and drill monitors initiate the drill and observe the actual responses of the operating crew. Once the drill is complete, the facility is restored to its pre-drill conditions.

Performing Post-Drill Critique

Following the completion of a drill, a critique is held. The critique is performed in an open forum meeting. This setting helps to encourage the exchange of ideas and point out areas of strength as well as weakness identified by the drill. The critique is conducted by the Drill Coordinator and/or the Shift Manager. The critique addresses procedural and watchstanding problems and includes recommendations for corrective actions.

Annual Drill/Monitored Evolution Schedules

An annual drill schedule is made to ensure that each shift participates in at least four drills per year and each watchstander on shift is evaluated annually. Events that are included in the drill schedule include:

·   Fires in the facility
·   Radiological events (where applicable)
·   Toxic gas releases (where applicable)
·   Release of hazardous material
·   Startup, shutdown, or steady state abnormal operating events
·   Abnormal or emergency events described in the facility Safety Analysis Report

Watchstanders evaluated as unsatisfactory during the evaluation period are removed from watchstanding duties until a remedial program is satisfactorily completed. Watchstanders that are judged to need improvement may also be assigned a remedial program.

SHIFT TURNOVER

This section reviews the operator responsibilities associated with shift turnover and discusses the shift turnover process. This includes document review, walkdowns, discussion and exchange of information, and the shift turnover checklist.

Purpose

The shift turnover process is established to ensure that relief personnel are provided the knowledge required to accomplish their shift assignment responsibilities. Shift turnover is a critical period during which it is essential that the on-coming shift or relief personnel are provided with complete and accurate transfer of information regarding the facility's overall status. Procedural requirements have been generated to provide shift personnel with a standard format for documenting shift turnovers.

Shift Turnover Responsibilities

EO 1.22   **DESCRIBE** the operator's responsibilities during shift turnover with regard to:
a.   Turnover location
b.   Qualification of on-coming operator
c.   Conditions of on-coming operator
d.   Operator reports following turnover
e.   Abnormal operating conditions during turnover

Individual operator turnovers should take place at their normal shift station. If critical work is in progress, turnover must generally occur at the work location. However, this requirement does not apply when conditions such as ALARA preclude turnover at the work location. A test briefing must be part of the shift turnover whenever testing is in progress
.
Only qualified personnel are to assume responsibility for shift turnover/relief. Personnel should not assume operational duties unless they are physically and mentally fit to do so and the on-coming and off-going personnel have a high degree of confidence that an appropriate information transfer has taken place.

During turnover, the off-going shift maintains responsibility. In the event of abnormal operating conditions at turnover, the off-going shift shall retain responsibility until:

·   Facility conditions are stable

·   Off-going supervision or operator explains all items noted on the turnover checklist

·   On-coming supervision or operator asks any pertinent questions.

Upon completion of watch relief, the on-coming and the off-going watchstanders report to their respective supervisor that responsibility has been transferred or report if there is a problem in the turnover.

Time is allotted to allow for document review, walkdown of control boards, and a discussion of important items specified on the turnover checklist.

Document Review

Before shift turnover, the off-going shift reviews those process activities and documents specified in the off-going shift section of the turnover checklist and enters their initial/signatures in the spaces provided to indicate completion.

Before assuming the shift, the on-coming shift reviews those process activities and documents specified in the on-going shift section of the turnover checklist and enters their signatures in the space provided to indicate acknowledgment and understanding.

The on-coming shift reviews the turnover checklist and operating log entries made during the previous 48 hours or since their last shift, whichever is less. The operating log review ensures the operators and supervisors are aware of current facility conditions and changes that have occurred since their last shift.

Walkdown

EO 1.23   **DESCRIBE** the turnover walk-down process to include: a.   Personnel required to attend control area walk-downs b.   Time and location of the walk-down required by the operators responsible for support systems

The purpose of a walkdown is to determine and verify the facility's current status through direct observation of systems and equipment. Control area walkdowns must be made by on-coming personnel accompanied by off-going personnel to allow for discussion and exchange of information. A walkdown of appropriate control panels must be conducted by each on-coming operator. All walkdowns are to be performed in a professional manner.

On-coming shift supervisors and shift test conductors must perform a walkdown of the control area. Supervisor walkdowns of facility must be made before, during, or shortly after shift turnover.

Shortly after the shift begins, operators responsible for support systems are to conduct a walkdown of all equipment in their area of responsibility and report any abnormalities to their supervisor immediately.

Discussion and Exchange of Information

Approximately 30 minutes are allotted to allow the off-going shift to discuss and explain any important items that affect facility operations and safety with the on-coming shift. The on-coming and off-going shift personnel conduct a discussion, which includes, but is not limited to:

·   Safety equipment/critical equipment status
·   Status of individual systems
·   Equipment in operation at turnover
·   Inoperable or tagged equipment, including instrumentation and alarms
·   Surveillance or equipment work in-progress at turnover
·   Reportable events
·   Special procedures or temporary procedure changes generated during shift

On-coming personnel ask questions at this time to satisfy the need for a complete understanding of their responsibilities. When the on-coming and off-going shifts are satisfied that the on-coming personnel are aware of facility conditions, the operator is formally relieved when the on-coming personnel verbally states that they are assuming responsibility for the shift position and an entry documenting the relief is entered in the appropriate log.

During facility testing, the off-going shift test conductor reports their relief and the status of current testing to the shift manager and the on-coming test conductor.

Shift Turnover Checklists

Each facility develops and maintains turnover checklists which are specific to the control areas and work stations of the facility. A shift turnover checklist is a standard form to aid in the turnover process and provides convenient method of denoting:

·   Equipment in/out of service

·   Work in progress, completed or to be performed

·   Unusual conditions or events

·   List of documents for review to ensure a complete transfer of facility status information

Checklists are considered records and are to be reviewed for completeness, accuracy, legibility, and authenticated by signature. All entries documented on shift turnover checklists are made using permanent black ink. When a correction is to be made to an existing entry, it shall be made as follows:

·   Draw a single line through the incorrect entry
·   Enter the correct information
·   Enter the date the change is made
·   Enter the initials of the person making the correction.

Reliefs Occurring During the Shift

The off-going and the on-coming watchstanders are responsible for determining the amount of turnover necessary to ensure the on-coming person is at least as knowledgeable of conditions as if the relief was a normal shift change. Like shift turnovers, reliefs are documented in the appropriate log.

SHIFT BRIEFINGS

This section describes the three phases of performing shift briefings including the purpose, content, and attendance of the briefings.

Purpose

A detailed shift briefing is essential to ensure that the operating organization fully understands the status of the facility, which activities are in progress, and which activities are to start during the shift. Successful operating organizations routinely conduct structured, well organized shift briefings. This also includes organizations that do not have routine, around-the-clock shift work.

Good shift briefings are dependent upon a variety of details such as:

·   Required attendees for the briefing
·   Amount and detail of information provided at the briefing
·   How the information is collected and by whom
·   Formality and consistency of the briefing
·   Management support

The following are examples of items covered during shift briefings:

·   Review of plant status

·   Equipment abnormalities

·   Evolutions in progress or planned

·   Planned work to be done during the shift

·   Review of new administrative procedures that impact on methods of doing work or meeting procedural requirements

·   Work related items of shift interest

·   Lessons learned from events in other areas or during other shifts

Attendance

The shift manager/shift supervisor should be present to "conduct" the briefing. Representatives from each of the support organizations will also attend the shift briefing. The following organizations should be represented (as applicable):

·   Maintenance
·   Health Protection
·   QA
·   Start-up
·   Technical Support (Cognizant Engineering)
·   Construction
·   Work Control
·   Any other organizations or support groups necessary to support shift activities

The shift briefing is an important part of the facility's daily activities. As such, it should be routinely attended and participated in by senior managers from both the operations and support organizations, up to and including division general managers.

Information to be Presented

The amount and detail of the information presented at the shift briefing is critical to the success of the work day. Prior to the shift briefing, all operations and support personnel should receive turnover from their "off-going" counterparts. Turnover checklists should be brought to the briefing and the information conveyed to the rest of the shift. Particular attention should be given to any differences that exist in the status of equipment listed in the checklists. Further investigation may be required.

Conducting the Shift Briefing

EO 1.24   **DESCRIBE** the three phases of the shift briefing process to include:
 	
        a.   Personnel responsible for conducting each phase
 	
        b.   Content of presentation of each phase

Normally the shift briefing should be conducted in three phases. It is important that operators and support organizations attend all three phases. Other interested personnel and senior managers should attend the third phase of the meeting, as a minimum.

Phase 1

Each operator (or work station) should provide a complete status report in his/her area of responsibility using the turnover checklist. This status briefing should be of sufficient detail that everyone present at the briefing understands the impact of ongoing and anticipated activities, and what their roles will be in support of operations. Any deficiencies or out-of-service equipment which requires timely corrective action will be identified to the appropriate organization. Any safety, radiological, industrial hygiene, or environmental issues should also be identified at this time.

Phase 2

Each support organization should provide the status of activities for which they are responsible. Sufficient detail should be provided to ensure each operator and affected support organization clearly understands the impact of the work and any support requirements.

Lengthy briefings such as start-up "pre-test" briefings should not be given at a shift briefing. Rather, a brief description of the activity and the anticipated support requirements and a discussion of the impact on facility operation should be given at the shift brief. Just prior to the start of such an activity is when involved personnel and specific support organizations should be briefed.

Each support organization should pay close attention to the information presented to ensure they understand what is expected with regard to their own organization involvement and support of the proposed shift activities.

Phase 3

The Shift Manager (or senior operation representative on shift) should conclude the briefing by setting the goals and priorities for the shift. This should be based on the information presented from phases 1 & 2 and the current shift schedule.

The Shift Manager should call upon affected support organizations to make sure they understand and have the capability to support the shift's priorities and goals. Inconsistencies or support difficulties should be addressed at this time.

At the conclusion of the shift briefing, the shift manager should provide any new training or "lessons learned" of immediate concern to the operators. This information should include a discussion of specific Conduct of Operations and safety "reminders" for the shift. The discussion material is provided by the Facility Operations Managers as part of ongoing shift training. Any Required Reading "immediate reading" material should be mentioned at this time.

When the operators report to their assigned areas of operation immediately following the shift briefing, the off-going operator informs the on-coming operator of any changes in plant status that may have occurred during the shift brief.

WATCHBILL ADMINISTRATION AND WATCHSTANDING PROFICIENCY

This section reviews the proficiency requirements of watchstanding and the proper utilization of watchbills.

General

Responsibility for approving and verifying the watchbill belongs to the applicable shift manager. It is the qualified watchstander that is responsible for ensuring they maintain proficiency on assigned watchstations.

Watchstation Proficiency

Watchstanding proficiency is maintained by actively participating in the job functions associated with the qualified watchstation within the frequency established by the facility manager (normally a monthly requirement). Watchbills may be utilized as documentation for maintenance of watchstanding proficiency; however, the Qualified Watchstanders List is the official listing of personnel that are considered qualified and proficient to stand watch on a watchstation or watchstations.

If a watchstander fails to stand watch within the time intervals established by the facility manager, the watchstander's proficiency is lost. As a result, the watchstander can not stand a watch until proficiency has been re-established. Proficiency can be regained by standing watch under the direct supervision of a qualified and proficient operator/supervisor while satisfactorily performing the watchstation duties. While attempting to regain proficiency, an evaluation of the watchstander by the qualified and proficient operator/supervisor is performed in accordance with procedure 3.3, Facility Drills and Monitored Evolutions, of the 2S Manual.

If a watchstander fails to maintain watchstation proficiency for a period 3 to 12 months, the watchstander must complete retraining prior to assuming watchstanding duties in addition to the proficiency restoration requirements of standing a watch under supervision. The facility manager determines the necessary training.

If a watchstander fails to maintain watchstation proficiency for a period greater than 12 months, the watchstander must perform requalification on the watchstation in accordance with the division training manual.

__Watchbills__

EO 1.25	**DESCRIBE** the requirements of changing a posted watchbill to include:
	a. Personnel allowed to grant permission for the change
	b. Steps taken to make the change
	c. Short term relief documentation

The shift manager is required to ensure the watchbill accurately reflects the watches stood by operators/supervisors on their shift. Changes to the posted watchbill must be approved by the shift manager and require a line through the watchstander's name, initial, date, the correct watchstander's name, and the time the watch was stood. Short term reliefs are not recorded on the watchbill, but are required to be entered in the appropriate log.

SHIFT ROUTINES AND OPERATING PRACTICES

This section reviews the operator responsibilities associated with established operating practices. This section describes the operator actions during abnormal or emergency conditions, the performance of rounds and tours, and the resetting of alarms and protective devices.

Responsibilities

Facility operators are responsible for shutting down or returning processes to a safe condition when the safety of personnel, the facility, environment, or general public is in jeopardy or when operating parameters exceed any protection system setpoints and automatic action has not occurred. In addition, the operators are responsible for being the only individuals permitted to manipulate the controls that directly affect the process, except for training purposes.

All operations personnel are responsible for the following:

·   Being present at their designated operating locations at all times during operation of the facility

·   Returning to their shift operating base when not performing in-facility duties

·   Remaining alert at all times

·   Monitoring the instrumentation and controls located within their areas

·   Being aware of all activities affecting equipment in their area of responsibility

·   Taking timely and proper actions to ensure safe operation of the facility

·   Notifying their respective Operations supervisor and/or shift manager of any unexpected situations

Facility Operating Practices

All manipulation of controls are to be performed by a qualified operator. Operation of mechanisms and apparatus other than controls that may indirectly affect the process must only be accomplished with the knowledge and consent of the qualified operators on shift and the shift manager. For training purposes, a trainee may manipulate controls under direct supervision of a qualified operator or Trainer/Evaluator (T/E).

Operations personnel are to respond to instrument indications and alarms until such indications and alarms are proven to be false. The first response is a verification of system status by an independent method in an attempt to prove or disprove the alarm or indication. The operator is to keep in mind that facility production must always take a back-seat to facility, personnel, and environmental safety. In addition, personnel performing functions that may affect process operation or control indications are to obtain permission from the Control Area/cognizant operator before initiating the action.

All operations activities are conducted in 24-hour military time. Activities include operating logs, roundsheets, turnover sheets, verbal communications, etc.

For event reconstruction, chart recorders are marked with date, time, recorder identification number, and operator initials upon removal of an old chart and installation of a new chart. The operator inspects the chart recorders for proper operation daily marking the chart with the date, time, and operator's initials. During significant events or unusual trends in parameters occur, the operator marks the resultant chart paper with the time and event to aid in event analysis.

If changes in facility status, abnormalities, or difficulties are encountered, the shift manager is to be promptly notified. Operators are to verbally announce alarms to inform others in the area as to what alarm has occurred and to inform them that the operator is cognizant of the alarm.

Operation during Abnormal or Emergency Conditions

Operators are to believe instrument indications and alarms unless proven to be false. When process operations are not as expected, return the process to a known safe condition and notify the shift manager. If conditions warrant, discontinue the process until the cause of the condition has been determined and safe conditions have been restored. If system parameters for trips or safety systems exceed their actuation setpoint and automatic actuation does not occur, operators are to manually shutdown the process using approved procedures.

Authority to Operate Equipment

The shift manager directs the overall operation of the facility. Control area operators and shift managers should be aware of all activities affecting facility equipment with the exception of general activities specified in Standing Orders. The performance of these activities are documented in the operator's narrative log.

Operator Rounds and Tours

Instructions for conducting tours is given in Procedure 5.4, Round Sheet Preparation and Use, of the 2S Manual. Operator tours must be of sufficient detail to ensure that the status of equipment is known. All operators are to tour the equipment/control boards within their area of responsibility at least once a shift. The Facility Manager may approve exceptions based on accessibility, hazards involved, operating mode, or equipment difficulties.

Operators should perform the initial tour of their responsible area early in the shift, before attending to other duties, to ensure familiarity with the condition and status of the equipment. Included in the tour, the operator is to perform an equipment inspection to ensure running equipment is operating properly and standby equipment is fully operable. In addition, the operator is required to perform the following activities during the tour.

·   Determine equipment status (operating, standby, work-in-progress, or out-of-service).

·   Inspect electrical panels, alarm panels, autostart standby equipment, and breakers for abnormal or unusual conditions.

·   Report to the control area equipment vibrations, unusual noises or smells, excessive temperatures, or other unexpected conditions.

·   Periodically check operability of panel alarm lights and annunciators.

·   Inspect area looking for deficiencies such as steam, oil, and water leaks; fire and safety hazards; radiological problems; open electrical panels, mobile objects, and other seismic concerns; clogged floor drains; housekeeping and cleanliness problems; and faulty lighting, roof leaks, doors that do not close, and other building deficiencies.

Deficiencies are documented on the Round Sheet and the actions taken to correct any deficiencies are noted. The Shift Manager reviews and initials the Round Sheet prior to the end of shift.

Personnel Protection

Operations personnel are to follow good radiological protection practices. Operators are responsible for their own protection and are required to utilize radiation work permits and work clearance permits, notify appropriate personnel prior to performing evolutions that have a potential to significantly change conditions, wear appropriate hearing, eye, head, foot, and respiratory protection, and refrain from climbing or walking on components or insulation.

Resetting of Alarms or Protective Devices

EO 1.26   **DESCRIBE** the conditions that must be met prior to resetting an alarm or protective device.

Personnel must not adjust or operate any alarm, interlock, or equipment operating setpoints unless such action is specifically authorized by approved operating procedures or work orders. Personnel must not reset protective devices (e.g., circuit breakers, fuses) until the cause of the trip is understood, with reasonable assurance. If the cause is known or if a "false" trip is suspected, then the device may be reset one time with the concurrence of the Shift Manager. Following a second actuation of a protective device, a troubleshooting plan is required to be developed which will consist of an investigation of the cause and the determination and performance of appropriate corrective action. Electrical breakers in systems rated at 480 volts or higher must not be reset without a written plan or procedure.

TIMELY ORDERS TO OPERATORS

This section describes the administration of Shift Orders and Standing Orders which provide the means for operations management to communicate information and administrative instructions to shift personnel.

Shift Orders

EO 1.27	**DESCRIBE** the difference between Shift Orders and Standing Orders as they apply to:
	a. Required update/review frequency
	b. Content
	c. Use in lieu of approved operating procedures
	d. Means of circumventing necessary procedure changes

Shift Orders provide a means for operations management to communicate short-term information and administrative instructions to shift personnel. Listed below are examples of information which can be included in Shift Orders.

·   Special operations
·   Administrative directions
·   Special data-collection requirements
·   Increased frequency in monitoring certain parameters
·   Classification of administrative instructions
·   Plotting process parameters
·   Performance of specific evolutions or tests
·   Work priorities
·   Announcements of policy information

Information and policies intended as permanent should be incorporated into appropriate administrative procedures. Shift Orders are not to be used in lieu of approved operating procedures nor used as a means to circumvent necessary procedure changes. If changes were allowed to be controlled by the use of Shift Orders, the potential would exist for operators to miss or forget the change while performing an approved procedure.

Orders should be clearly written, brief (normally one page or less in length), and maintained in a binder in the control room. Shift Orders are normally effective from 1600 one day to 1600 the next day. Shift Orders should be replaced or updated daily except for weekends and holidays. Appropriate personnel are to review Shift Orders as early in the shift as possible and document their review by initialing a Shift Order Form.

Standing Orders

Standing Orders provide a means for operations management to communicate long-term information and administrative instructions to shift personnel. Special instructions such as minimum shift manning requirements for all facility conditions may be included in Standing Orders.

Information intended to supplement operating procedures should be promptly incorporated into the appropriate procedure by a procedure change or revision. Like Shift Orders, Standing Orders are not to be used in lieu of approved operating procedures nor used as a means to circumvent necessary procedure changes.

Standing Orders are maintained in a loose leaf binder in the control room which is divided into two sections labeled "Shift Orders" and "Standing Orders." Standing Orders are replaced only when changes are deemed necessary. The appropriate personnel are informed of new or revised Standing Orders by means of a distribution list which is routed at least annually or when a change occurs. As appropriate, the Required Reading program and/or the shift turnover checklists are utilized to document the review by facility personnel.

PRINCIPLES OF CONSERVATIVE OPERATION

Principles of conservative operation help to ensure that each facility will be operated in order to maintain safety of the general public, the environment, and on-site workers.

Principles of Conservative Operation

The following Principles of Conservative Operation are to be followed whenever operations personnel are faced with abnormal, off-normal, or emergency conditions that may threaten the health, safety, and well-being of the public, employees, environment or facilities and equipment:

·   Operations personnel will ensure the safety of the general public by the proper operation and frequent monitoring of their equipment and facilities.

·   Operations, maintenance, testing, engineering, and other activities will be conducted in an orderly and professional manner in accordance with approved procedures and in accordance with guidance spelled out in the Conduct of Operations or Conduct of Maintenance manuals.

·   Operations personnel will use "thinking compliance" when conducting activities, doing work, or following written procedures. Where the employee believes a procedure to be wrong, the employee will stop work and advise supervision.

·   Operations management will conduct periodic assessments relating to operating standards, work activities, and facility conditions.

·   Operations department safety rules and safety procedures will be reviewed and updated at least every two years.

Principles of Operation

Operations personnel will adhere to the following Principles of Operation:

·   Perform each procedure in a "thinking compliance" manner, alert to discrepancies or inadequacies and not proceeding when they occur.

· Be (or become) technically competent to perform each activity that is a part of the job and inform supervision when you don't think you are.

· Maintain a high level of technical awareness when preparing for and performing activities, especially complex or infrequently performed activities.

· Proceed in a cautious and methodical manner in even the most routine activity.

· Plan ahead and be alert to unanticipated results.

· Do NOT accept unacceptable conditions or results.

· Actively communicate deficiencies and require an acceptable resolution prior to proceeding.

· Perform and accept independent verification, when required, with the understanding that it is intended to protect personnel from process errors.

· As a manager or supervisor, support the principles of Conduct of Operations, be receptive to concerned questions, and accept the responsibility to provide a timely, technically correct answer.

· Believe your indication unless it is confirmed to be in error.

· Do not operate with alarm conditions, if necessary, use compensatory measures.

· Do not bypass interlocks or limit switches without authorization.

· Do not operate so that limits or protective devices are challenged.

· Do not rely on check valves for leak isolation or as boundary valves.

· Obtain double boundary isolation from mechanical high energy sources.

· Check the position of valves that are supposed to be open by going in a closed direction. Valves whose position is supposed to be closed can only be checked by going in the closed direction - this check is not positive because the valve could be stuck on its backseat. Checking the position of throttle valves is a special case.

· Do not take the next step unless you can return safely.

· Do not defeat, block, obscure, or muffle an alarm light, horn or warning device, or system without authorization.

·	Do not operate with deficiencies that require the operator to intervene or otherwise compensate for deficiencies.

·	Do not operate with leaks.

·	Do not override limit switches, protective devices, or systems.

·	Controls are needed when leads are lifted or when jumpers are placed. Attention to their effects and removal is paramount.

·	Have spare empty tank volume when filling systems so that the system can be drained.

·	Check alarms and indicating lights on each shift.

·	If there is no approved procedure or it has not been done before, get a procedure, walk it down, train to it, use mock-ups.

·	Extraordinary controls are needed when relief valves are gagged, blocked, disabled, or undergoing testing.

·	Beware of temporary systems or modifications, they tend to become permanent and bypass the engineering rigor.

·	A temporary system that is used in lieu of the permanent system has to be every bit as good in function and protection as the permanent system. The same training, procedure, and operating discipline apply.

·	Know what to expect. If it does not happen or appear, stop, and go to a steady-state or shutdown mode.

·	If an automatic safety feature fails, shut down now; if an automatic control feature fails, shut down or take action as specified by Technical Specifications or Operational Safety Requirements.

·	Inspection cannot be in the production chain. An inspector cannot be the doer.

·	Beware of the results of independent verification if the verifications are done at the same time as performance of the activity.

·	The person who signs must know what he/she is signing for.

·	If two or more indicators monitoring the same parameter do not agree, believe the worst case.

·   Other than normal facility operating conditions such as shutdown, operating on backup equipment or facility heatup require extraordinary vigilance and precaution for unexpected events are prone to happen.

Self-Verification Process

The following self checking process taken from a Conduct of Operations Benchmark Report consists of seven steps that can be used by operators while performing their duties to help reduce or prevent operator error. The process is described by the acronym "BE CERTAIN" where "CERTAIN" means:

C	Contemplate what you are going to do
E	Eyeball the component to be operated
R	Read the label to verify the component is correct
T	Touch the right component before you operate it
A	Anticipate the results of your action
I	Initiate the action
N	Notice that you get the expected response from your action

Facility Operator Dress Standards and Grooming

The perception of our performance by our customers, regulators, suppliers, and vendors is strongly influenced by our appearance. Therefore, it is inappropriate to wear articles of clothing such as shorts, cutoffs, tank tops, open-toed shoes and other attire not appropriate for the facility.

Personnel report for work with personal appearance and clothing appropriate for their position. Maintenance of a neat, uniform, and well-groomed appearance is a fundamental element of a professional atmosphere. To maintain a professional appearance, clothing worn while at work (including hard hats) must not include inappropriate slogans, symbols, or diagrams not related to company or facility activities.

Clothing worn by operations personnel should neither be so tight as to be restrictive, nor so loose as to be caught in moving machinery. Wear protective clothing in all zones designated for such attire. Safety equipment such as safety shoes, hard hats, ear plugs, or safety glasses must be worn when required.   Substantial footwear resistant to puncture and liquid penetration is recommended.

Hair should be well groomed and not present an unkempt appearance. Bulk and length of hair cannot interfere with vision or become a hazard to the wearer in emergency situations. Hair must not interfere with the proper fit of headgear, respiratory equipment, and similar other emergency equipment.

Operations Concern for Fitness for Duty

NOTE: The following guidelines are consistent with the requirements contained in WSRC Manual 1B, MRP 2.07, "Fitness for Duty."

Operations, and all company personnel, are expected to present themselves and maintain themselves in a condition that is fit for duty. Consumption of alcohol or illegal drugs during work hours, meal periods, and breaks is not allowed.

No employee is permitted to assume his/her duties and responsibilities if it is obvious that the person is not alert, coherent, or capable of performing the requirements of the position.

Any person, management, supervision, or employee who observes behavior that indicates that an individual is unfit for duty has the responsibility to confidentially advise a member of the facility management of such observations. Upon suspicion of a person being unfit for duty, management makes an initial evaluation of the fitness for duty of the individual in question. Additional evaluations, including medical evaluations, may be requested with the help of medical personnel and security personnel.

Operations management has an ongoing responsibility to evaluate the fitness for duty of individuals and to document any deviations from the company fitness for duty policy. It is management's responsibility to provide escorts for personnel who are determined to be unfit for duty to the proper medical or treatment facilities.

When calling personnel into work on unscheduled shifts, management must first ask them if they are fit for duty. If the answer is that they are not fit for duty, personnel should not be encouraged to report for work until a reasonable time has passed for them to return to a fit state or unless medical personnel can certify their fitness for duty. If by working the individual feels the results of the work could jeopardize the safe operation of equipment, other personnel, the general public, or the environment, no person will be required to work.

CONTROL AREA ACTIVITIES

This section reviews the administrative and operational requirements for conducting control area activities and discusses the manner in which business is to be conducted within the control area.

General

EO 1.28	**DEFINE** the following terms:
	a. At-the-Controls (ATC)
	b. Control Area

Each facility manager clearly defines the Control Areas (CA) and At-The-Controls (ATC) areas within the facility. For CIF, these areas have been designated in the Standing Orders. The CA and ATC area must be physically identified by visible means such as floor markings, signs, barrier ropes, or chains.

·   The At-the Controls (ATC) is defined as the specific floor within a control area where an operator is stationed and in which other personnel in that area could block the operator's view of instruments, controls, indicators, or otherwise restrict or distract the operator's attention.

·   The Control Area (CA) is defined as an area or room having an assemblage of control devices (switches, dials, breakers, valves, etc.) and indicating/monitoring equipment (meters, gauges, recorders, etc.) which are used for the control of a process or system, and interruption or misoperation of that process or system could jeopardize personnel safety, create a hazard to the environment, or result in significant financial loss.

Designated CA personnel grant entry into the CA. Entry requirements are posted at the entrance to the CA. Personnel desiring entry must state the purpose and request permission for entry.

The presence of personnel in the CA, other than assigned shift complement and other personnel as designated by facility policies, procedures, or instructions, is limited.

The senior operations individual present has the responsibility and the authority to restrict access or remove non-essential personnel from the CA, if, in that individual's opinion, the presence of those personnel jeopardizes the safe operation of the process. The intent is to limit the number of personnel not assigned to the CA to an absolute minimum at all times.

During periods of abnormal or emergency operations, the shift manager should normally direct non-essential personnel to exit the CA. Only the shift manager or a designated alternate gives permission to enter.

Within the control areas, the ATC areas will be identified as restricted access areas. Only assigned shift operations personnel may enter the ATC area without obtaining permission. Permission for others to enter the ATC area is obtained from the CA supervisor or designated operator.

Professional Behavior

Display professional behavior in the CA at all times. Only activities essential to supporting operation and activities authorized by management are conducted in the CA.

Conduct all CA activities in a disciplined, formal, businesslike, and professional manner. Potentially distracting activities (e.g., radio listening, game playing, reading non job-related literature, etc.) are prohibited. Minimize non -job-related discussions so as not to interfere with the conduct of the shift or monitoring of key parameters.

Conduct facility business, such as work order or lockout approval, at a location and in such a manner that will not distract on-duty personnel nor compromise the professional atmosphere of the CA. Personal phone calls are prohibited in the CA, except in an emergency.

Eating meals in the CA is not allowed, except where manpower or skills shortages do not allow for CA operators/supervisors lunch relief, in which case one operating person at a time may eat their meal in the CA. The supervisor will control this activity. This exception does not supersede any prohibitions imposed for other reasons (e.g., health physics concerns).

Although beverages are allowed in the CA, liquids should not be consumed in the ATC areas. Cups or containers are not to be placed upon or adjacent to consoles, panels, or other control system or computer keyboards.

Do not wear hard/bump hats in the CA unless specifically required for maintenance or other special conditions. Experience has shown that a falling hard hat may inadvertently actuate or de-energize equipment.

Monitoring the Main Control Panels

Operators must be alert and attentive to control panel indications and alarms. Monitor indications frequently, and take prompt action to determine the cause of and correct abnormalities. Place emphasis on closely monitoring and trending to detect problem situations early.

Operator response to alarms must be timely and actions shall be taken to address the cause of the alarm and clear alarming conditions. Do not disable alarms or annunciators without formal authorization. Alarms shall be verbally announced so that CA operators know they have been acknowledged and what the alarm is.

Limit the number of concurrent evolutions so that the operator's ability to detect and respond to abnormal conditions will not be compromised as the result of excessive control panel indications.

Computerized or automated systems may be used to control processes. Develop procedures using manually controlled and operated backup equipment to include a loss of system control due to a single mode failure (i.e., loss of computerized or automated controls). Operators must be proficient in the use of manual/backup controls.

Control Area Operator Ancillary Duties

EO 1.29   **DESCRIBE** the Control Area Operator's responsibilities with respect to their performance of ancillary duties.

Duties assigned to operators must not interfere with their ability to monitor facility parameters. Activities such as preparation of tagouts, reviews of operating procedures, Required Reading, review of maintenance work activities, etc., must not interfere with the operator's primary responsibilities.

Minimize the administrative workload of operators responsible for monitoring and operating the control board. If one operator is involved in administrative tasks, other operators should assume, by formal relief procedures, the responsibility to monitor the process. Some administrative activities are better performed away from the ATC area by an operator who is not responsible for operating the control panel.

Operation of Control Area Equipment

Only operations and support personnel specifically authorized by facility procedures shall operate CA equipment. When trainees operate this equipment, they are supervised and monitored by the operator, who normally would perform the operations.

No operator must attempt any operational activity they do not feel qualified to perform.

Personnel must demonstrate ownership of facility areas. This includes not only maintaining systems and equipment operating within specified limits, but also maintenance of the material condition of the spaces for which the operator is responsible (e.g., wiping up fluid leaks, initiating corrective action for deficient equipment, etc.).

ROUND SHEET PREPARATION AND USE

This section describes the requirements for the performance and review of operator rounds and briefly outlines the instructions for the preparation and use of operator round sheets.

General

Round sheets provide operators with guidance on the extent to which equipment and areas should be inspected during routine tours. The recording of key equipment parameters during tours provides a record of equipment performance and can be used to reconstruct events leading up to abnormal operating occurrences or system malfunctions. This record permits short-term trending by operators and supervisors so that undesirable trends and equipment problems can be identified and corrected. In addition, this record also permits long-term trending by maintenance and system engineers so that corrective, preventive, and predictive maintenance programs may be adapted to maximize equipment reliability.

Preparation of Round Sheets

The content of round sheets includes a listing of important equipment parameters derived from a variety of sources including the following:

·   Operating limits specified by equipment manufacturers
·   Process Requirement limits
·   Resource Conservation and Recovery Act (RCRA)
·   South Carolina Department of Health and Environmental Control (SCDHEC)

Currently, no rounds at CIF have designations for these requirements. Regulatory rounds have been established to ensure that regulatory parameters are monitored. In the upcoming development and approval of the CIF Process Requirements, round sheets will be marked with a PR designator to allow easy recognition on the round sheet.

Performance of Rounds

Operator rounds are physical tours performed to monitor and record equipment operating parameters, verify the proper lineup of specific plant equipment and systems, and determine the general condition of the area of responsibility. The primary purpose served by operator rounds is the early detection and reporting of degrading conditions so that corrective actions can be taken in a timely manner.

EO 1.30   **DESCRIBE** the responsibilities of the watchstander while performing rounds.

Operators are responsible for the following:

·   Performing facility rounds and properly recording results (including the completion of the narrative section)

·   Reviewing round sheets during the performance of rounds to identify operating parameters outside specified limits and developing trends

·   Initiating prompt corrective action for out of specification data, in accordance with facility operating procedures, and reporting such actions to the shift manager

Data is recorded at the time or frequency specified on the round sheet. If data is not obtained within one hour from the time specified on the round sheet; the data, the actual time data was taken, and an explanation is recorded in the narrative section of the round sheet. As soon as possible, the shift manager is notified and an evaluation of the data is performed for potential out-of-limit conditions that may have occurred during the period missed.

The narrative section entries of the round sheets should include:

·   Description of significant events occurring
·   Major evolutions
·   Causes of abnormal conditions
·   Actions taken to correct abnormal conditions
·   Indications that supervisors have been notified

Completed round sheets are available for the operator to identify trends and to remain aware of parameter changes. Appropriate actions can then be taken by operators to maintain equipment operating parameters within limits specified on the round sheet. Likewise, the operator should determine the status of responsible equipment while performing the rounds to best respond to potential problems that may occur during the shift.

Whenever equipment is started, the operator immediately begins continuous visual monitoring of associated data points until they stabilize. After stabilized, the data points are recorded in the round sheet. In addition, the start time is entered in the narrative section of the round sheet.

In addition to parameters and conditions which are specifically listed on the round sheets, the operator should watch for hazards. Operators are to immediately report hazards to their supervision and make a note in the narrative section of the round sheet. The following is a partial list of potential hazards that could exist while performing rounds:

·   Fire hazards such as improper storage of flammables

·   Smoke or unusual odors

·   Radiological hazards such as improper barricaded radiologically controlled areas

·   Safety hazards such as improper barricaded tripping or bumping hazards

·   Oil and grease spills

·   Water and steam leaks or other discharges

·   Exposed rotating equipment or electrical wiring

·   Equipment making unusual noises

·   Abnormal temperatures/humidity

·   Degraded material condition of process equipment

·   Poor housekeeping

Taking and Recording Data

Operators are to believe their instrument readings and treat them as accurate unless proven otherwise. When a reading is unexpected, the operator should verify its validity by checking other indications, if possible. Once verified, prompt action should be taken to investigate the cause of abnormal or unexpected indications and to correct the abnormal/unexpected condition.

Data recorded during the performance of rounds is verified to be within the minimum and maximum allowed values specified on the round sheets, as applicable. If the parameter units listed on a round sheet are not the same as indicated on an instrument, then the applicable measurement values from the associated operator aid or controlled conversion chart are recorded.

If any of the data values recorded is out of the allowable band specified on the round sheet, then the following actions are to be performed:

·   Circle the reading in red ink

·   Inform the shift manager and/or operations supervisor

·   Initiate prompt corrective action (as appropriate) per operating procedures

·   In the narrative section of the round sheet or appropriate log, record the round sheet item number, probable cause, and action taken

Personnel performing rounds are required to remain aware of the rate at which parameters are changing or should be changing such that action can be taken prior to a limit being reached. As mentioned earlier, the operator is responsible for maintaining equipment operating parameters within established limits.

In the back of the round sheet, the Procedure Notes section provides a listing of useful information including specific actions the operator is required to take if a particular limit is exceeded. The operator is required to promptly report any value that is marked as being derived from a Process Requirement limit and is out of the specified band.

If the parameter is out of the specified band and is not derived from a Process Requirement limits, the value is to be reported at the completion of the rounds, but before the end of the shift. The applicable supervisors will become involved in a prompt investigation as to the cause of any abnormal reading.

Review of Round Sheets

Each supervisor on shift reviews the round sheets for key positions under their cognizance before the end of each shift. This review is to ensure that all out-of-limit data and abnormal or unexplained conditions and trends have been properly identified, that proper actions have been taken, and that adequate descriptions have been entered in the narrative section of the round sheet.

The shift manager makes periodic tours of the facility and performs random reviews of facility round sheets to ensure that round sheets are being properly executed. The facility operations manager periodically reviews completed round sheets in sufficient detail to ensure that round sheets are being completed in accordance with the guidelines of procedure 5.4 and to identify any long term trends of operating equipment parameters which could indicate future potential problems.

CONTROL OF EQUIPMENT AND SYSTEM STATUS

This section covers the means established to ensure equipment and system configuration control is maintained whose mechanisms include status boards, alignment checks, equipment locking, equipment deficiency, work authorization, alarm status, and temporary modification control. Also presented is status change authorization, operational limits compliance, and post-maintenance testing.

General

It is imperative that equipment and systems at SRS be properly controlled. Not only must the operating shift be aware how equipment and systems will function for operational purposes, but the proper component, equipment, and system configurations must be established and maintained in order to satisfy design basis and operational limitations. Information about system and equipment status can be obtained from several sources, including the following:

· Visual/Audible indications
· Data sheets
· Logs/Logbooks
· Turnover checklists
· Shift turnover briefings
· Work packages
· Status boards

Administrative controls have been placed on the facilities to handle configuration changes resulting from maintenance, modifications, and testing activities. Equipment and system configuration changes must be communicated from shift to shift through the shift turnover process or other equivalent method. Turnover checklists and equipment status boards are used as aids for compiling and transmitting status information efficiently and accurately.

As a minimum, status control must be maintained for the following:

· Safety related equipment and systems (there are no safety-related systems at CIF)
· Equipment and systems used to monitor or control environmental releases

System Folders and Status Files

EO 1.31   **DESCRIBE** the process of updating status control mechanisms to include:

     a.   System status files/folders

     b.   Status boards

     c.   Equipment alignment checks

System folders are used to store documents relating to a specific system. System folders contain documentation relating to system status which includes copies or references to work control permits, lockouts, and other documents. Documents relating to system configuration (system alignment checklists, deviations, etc.) are placed in a system status file located in the control area. At present, system folders are located in the control area and contain the applicable system status file. When a system's status changes, the applicable system folder including the system status file is updated. Systems are considered to be in normal configuration unless an entry for that system is entered into the system folder.

Status Change Authorization And Reporting

The Shift Manager is responsible for maintaining proper configuration and is the only individual that can authorize status changes to major equipment and systems. The Shift Manager must maintain a broad overview of the facility. The shift manager's perspective of status must be the focal point of shift operations.

Authorization of status changes to equipment and systems of lesser importance may be delegated to other shift positions. Delegation does not relieve the Shift Manager of the responsibility for maintaining an overview of facility operations. The Shift Manager should be advised periodically of changes in the status of equipment and systems under his/her responsibility.

Since the operators must be aware of equipment and system status, the shift supervisor should ensure that all changes in status are communicated to the facility operators. Changes in facility equipment status should be reported to the control area or to the individual that authorized the change. Changes in status of safety related equipment and systems should be authorized by the Shift Manager and reported to the control area.

Status Board

The status board is an aid used to provide equipment and system status to operations personnel. Information recorded on the status board include the following:

·   Equipment and system operability
·   Limiting conditions for operation in effect
·   Process status
·   Equipment and system alignments

The CIF status board is located in the control room and is to be updated as equipment and system status changes occur. During shift turnover, the status board's current condition is reviewed.

Status boards are required for equipment and systems for which status control is required with the following provisions:

·   No alternate visual means of obtaining status is readily available in the control area
·   System status does not change normally several times a shift

Equipment and System Alignment

Prior to first placing equipment or system in operation, individual components should be properly aligned or checked for proper alignment. An initial alignment of valves, breakers, and switches establishes a baseline configuration against which further operations may be measured. Once the system is aligned and operating properly, frequent complete alignments of all individual components may not be necessary.

Alignment checklists should be used to guide the operator in establishing the correct component positions. Alignment checklists include:

·   Equipment nomenclature that matches the component's label
·   Documentation of the check and verification of each component
·   Required component position
·   Deviations from the required alignment (as applicable)

The need for complete alignment of equipment and systems should be based on the level of control that has been maintained over the status of components. Typically systems or equipment that are to be returned to service or returned to standby status require alignment verification.

Equipment and system alignments are only required for equipment and systems that are required to be operational. Status control requirements may be temporarily relaxed with approval of the Facility Manager (e.g., major equipment maintenance). In addition, a complete system verification of alignment should be accomplished every two years.

Alignment checklist items may be grouped by location provided the system, process, or equipment will not be affected. The alignment is not considered complete until signed by the shift manager. When an alignment checklist is completed, the checklist or a copy is retained in the system status file. Completed checklists remain in the status file until superseded by the subsequent performance of a checklist.

The shift manager must authorize any change that will affect system status other than normal shift activities using approved procedures. In addition, the shift manager is to be notified before performing any task that will result in a change to normal configuration or when abnormal conditions are observed. Systems are considered to be in a normal configuration unless an entry to the contrary has been placed into the system folder.

Alignment checks verify component positions and list the required position of each component. The operator performing the alignment check will document the actual position in the As-Found-Position column, initials the step as the performer or verifier, and completes the signature data sheet.

Components found out of their required position are not to be repositioned without review and approval by the shift manager. If this occurs, the shift manager will perform the following:

·   Provide resolution
·   Authorize component repositioning
·   Enter the new position in the As-Left-Position
·   Approve completed checklists after all repositioning is complete

Deviations that are not to be placed in the Required Position column and are not under control of an approved document, procedure, work package, or lockout require documentation on a deviation sheet. Deviation sheets as a minimum document the deviated component(s), basis/cause of deviation, eventual return to normal, and shift manager approval for deviation and return to normal.

INDEPENDENT VERIFICATION

This section reviews the operator responsibilities associated with the independent verification of components including specific techniques to be used when performing an independent verification.

Independent Verification Concept

EO 1.32   **DESCRIBE** the concept of independent verification.

Independent Verification does not require the presence of a certified independent inspector. It is similar to peer verifications. Independent verification recognizes the human element of component operation; that is, any individual, no matter how proficient and conscientious, can make a mistake. An individual's confidence in the ability of his/her peers should not cause a relaxation of attentiveness with respect to verification tasks. We need to do our job as an independent verifier, no matter how much we may trust a fellow operator.

Independent verification will be performed when a reasonable potential exists for component mispositioning or the consequence of error is great.

Components Requiring Independent Verification

Components in safety related systems require independent verification. There are no safety-related systems at CIF. Certain non-safety related components may also require independent verification if their mispositioning could lead to challenges to safety systems or to the inadvertent release of radioactive or toxic materials. In addition, components necessary to support the operation of important facility equipment should be independently verified in order to prevent unnecessary shutdowns. As designated in the Standing Orders, selected valves that cannot be readily monitored from the DCS in the following systems at CIF are required to be independently verified:

- Tank Farm Isokinetic Sampler
- Off-Gas Exhaust Isokinetic Samplers
- Building Ventilation Isokinetic Samplers
- CO/O_2 Analyzers
- Opacity Monitors

These components are independently verified due to their potential for radioactive or toxic release.

Occasions Requiring Independent Verification

In general, components receive independent verification when the equipment they serve must be available and a possibility exists that the components may have been mispositioned. Other occasions requiring independent verification are:

· Returning equipment to service following maintenance or repair
· Removing equipment from service as required by a Lockout/Tagout
· Equipment and system lineups
· Periodic checks during facility operation

Verification Techniques - General

Personnel should apply self-checking techniques and be trained in the use of appropriate techniques for verifying the positions of all facility components requiring independent verification. Some of these techniques are as follows:

EO 1.33   **DESCRIBE** the independent verification techniques for typical components.

Techniques for Verifying Valve Position

Verification techniques fall into two broad categories, direct and indirect verification. Direct verification includes manipulating the valve in the closed direction to verify both open and closed position, observation of the valve stem as an aid in determining valve position, and observation of a mechanical position indicator activated by valve stem travel. Indirect verification includes the observation of remote position indication lights, the use of process parameters, and observation of a mechanical position indicator actuated by gears off of a motor driver (e.g.; Limitorque). Independent verification should be performed using local indications, since the sensors, transmitters, and power supplies which drive remote indicating devices have been known to fail, resulting in erroneous indications. Remote position indicators may be used for independent verification if they are tested on a periodic basis using approved procedures.

Do not use the relative height of a valve stem as the sole means of determining valve position. There are many different valve types used in the facilities, each having unique characteristics for determining their position.

For unlocked, manually operated valves which are to be verified open or closed, turn the valve handle in the closed direction. For valves to be verified open, turn the valve as necessary to remove any slack from the operating mechanism, verify valve stem movement, and then return the valve to its original position. For valves to be verified closed, no valve stem movement should occur. Take care not to over torque the valve operator when checking it closed. Damage to the valve seat may result. Never verify the position of a closed valve by turning the handle in the open direction, as this may result in the release of hazardous energy. For valves, closed is the safe position.

For manually operated valves which are locked for administrative control, verify that the component ID and Name are the same as specified on the equipment, then verify the valve position and install the lock. Ensure the locking device (hasp) is mounted securely and the padlock is in a locked position. Only laminated, long shank, Master locks are permitted.

The initial position of a throttled valve is normally determined by observing position indicator scribe marks or other officially recognized and designated indications. The independent verifier observes the initial positioning of the valve and the installation of the locking device. The independent verifier must not attempt to move the valve, as this will nullify the initial positioning.

The position of motor-operated valves may be checked by local position indication or remote indication lights. Local position indication may be observed by a dial indicator driven from the valve stem assembly. Observation of valve stem position may also be used, but not as the sole means of position determination. Remote indicating lights may be observed to be open or closed. An intermediate position is indicated when both lights are illuminated.

Air-operated valves may have a local mechanical position indicator on the valve stem or remote position indicating lights.

Techniques for Verifying Status of Electrical Components

For Load Center Circuit Breakers up to 480 volts (drawout type air magnetic), verification is achieved by observing one or more of the following:

·   Open or closed as shown by indicating light(s) on panel
·   Open or closed as shown by indicator on breaker itself
·   Racked out to test or disconnect position
·   Racked in
·   Completely removed from cubicle
·   Locking device properly installed on locking hasp (locks breaker open)

Techniques for Verifying Component Position Using Process Parameters

EO 1.34	**DESCRIBE** the role of using process parameters when performing independent verification.

In some situations, component position may be verified using various process parameters such as pressure, temperature, flow, and voltage. Observing process parameters in conjunction with a physical check of a component's position may constitute an independent verification.

Care should be exercised when using process parameters for independent verification because alternate flow paths and other factors could cause them to be misleading indicators of component position. For example, voltage on a bus would prove that a particular supply breaker was shut only when there is no alternate power supply. In addition, flow or pressure would not necessarily indicate that a valve is fully open. For these reasons, process parameters should normally be avoided as a means of independent verification and shall not be used as the only indication of a component's position.

Independent Verification Performance Guidelines

EO 1.35	**NAME** the separation criteria that must exist between an initial positioner and an independent verifier.

There must be no doubt as to the determination of the actual position of a component. Both the positioner and verifier determine the actual position of the component based on experience, training, and, if needed, vendor information for the specific device. Personnel should contact shift management if there is any uncertainty or the cognizant system engineer if technical assistance is required.

Independent verifications should be conducted in a manner such that each check constitutes an actual identification of the component and a determination of both its required and actual position. Personnel performing the initial positioning and independent verification must be physically separated in both location and time to ensure independence and the integrity of the independent verification. When independent verification is required and special circumstances require the two individuals performing the task to work together (e.g.; throttled valves or a high temperature environment requiring the use of the "buddy system"), the act of performing the independent verification must be completely separate and independent of the initial alignment, installation, or verification.

If the actual position of a component cannot be verified or the component cannot be located, the independent verifier should contact shift management. In order to maintain complete independence, the independent verifier must not seek assistance from the initial positioner of the component.

If excessive radiation exposure would result, alternate means of independent verification should be considered, or the independent verification may be waived with the approval of the facility manager.

EO 1.36	**STATE** the action necessary if a component is found in other than the specified position during an independent verification.

If the component is not in the required position, the independent verifier shall not initial that step nor reposition the component. The independent verifier stops, notifies the shift manager, and awaits further instructions from the shift manager.

EO 1.37	**IDENTIFY** the actions to be taken if the independent verifier discovers a Do Not Operate tag on a component.

If the independent verifier discovers a Do Not Operate (DNO) or Caution tag (where the tag notation precludes component manipulation) on a component, the independent verifier must not manipulate the component. The position stated on the DNO tag is considered to be the actual component position. The actual physical position of the component is verified (if possible) without manipulation of the component.

HAZARDOUS ENERGY CONTROL

This section discusses the responsibilities of all personnel regarding hazardous energy control. Additional training is required prior to performing lockout activities.

Purpose

Hazardous energy control instructions are found in Manual 8Q, Procedure 32. The purpose of hazardous energy control is for the isolation and restoration of equipment and systems to:

·   Protect site personnel

·   Protect equipment from damage

·   Prevent the release of hazardous materials to the environment during maintenance, inspections, tests, and abnormal activities.

Personnel Responsibilities

EO 1.38   **DESCRIBE** the responsibilities of all personnel regarding Hazardous Energy Control.

Equipment that is under a L/T must not be repositioned nor are the tags to be altered in any way. Tags and locks are never to be removed from a component unless you have had the proper training and are authorized to do so. If you come across a situation where it is not clear how to proceed or something appears suspicious regarding the L/T, inform your supervisor and wait for further guidance.

OPERATIONAL ASPECTS OF FACILITY CHEMISTRY

> EO 1.39   **LIST** five operator responsibilities applicable to the Operational Aspect of Facility Chemistry and Technical Processes.

Operator Responsibilities

Facility operators are responsible for the following:

·   Monitoring chemistry or process parameters using instruments related to equipment under operations control

·   Monitoring chemical parameters as specified by approved operating procedures

·   Being able to recognize out-of-specification conditions or adverse trends

·   Being familiar with corrective actions associated with out-of-specification conditions and chemical problems

·   Being knowledgeable of the appropriate facility chemistry aspects that affect system operations

Operators should also be familiar with certain concepts and processes including:

·   Basic concepts of pH, conductivity, dissolved oxygen, molarity, neutralization, and density, and the effect of these parameters on the facility

·   How demineralizers and ion exchangers work and how to determine if they are performing efficiently

·   The purpose and hazards associated with the use and storage of facility chemicals

·   Chemical parameters monitored in the control area or on local panels

·   Properties and hazards of gases used and found at the facility

·   Problems associated with corrosion

·   Operation of water pretreatment equipment such as clarifiers or filters

---

Operators must understand the responsibilities associated with their position so that they can identify early signs of process-related problems. Operators must also understand how equipment and operational problems affect process conditions. A good working relationship between the operations and technical support organizations must be established so the facility staff can effectively control facility processes.

Operators should be capable of correctly interpreting the chemistry or process parameters they are responsible for and be able to provide appropriate and timely corrective action when required. Operational monitoring of facility chemistry or unique data and parameters is important to verifying that system operation is in accordance with the design expectations.